Claims:

1. A thermally conductive polymer molded article formed by molding a thermally conductive composition, the thermally conductive composition comprising:

a liquid crystalline polymer having a first thermal conductivity; and

a thermally conductive filler having a second thermal conductivity in at least one direction, which has magnetic anisotropy,

wherein the liquid crystalline polymer and the thermally conductive filler are oriented in the molded article by a magnetic field.

2. The thermally conductive polymer molded article according to claim 1, wherein the thermally conductive composition contains 100 parts by weight of the liquid crystalline polymer, and 5 to 800 parts by weight of the thermally conductive.

3. The thermally conductive polymer molded article according to claim 1, wherein the second thermal conductivity of the thermally conductive filler is higher than the first thermal conductivity of the liquid crystalline polymer.

4. The thermally conductive polymer molded article according to claim 1, wherein the liquid crystalline polymer includes a thermotropic liquid crystalline polymer.

5. The thermally conductive polymer molded article according to claim 4, wherein the thermotropic liquid crystalline polymer comprises at least one polymer selected from the group consisting of a thermotropic liquid crystalline wholly aromatic polyester and a thermotropic

liquid crystalline wholly aromatic polyester amide.

6. The thermally conductive polymer molded article according to claim 1, wherein the liquid crystalline polymer includes a lyotropic liquid crystalline polymer.

7. The thermally conductive polymer molded article according to claim 1, wherein the thermally conductive filler comprises at least one filler selected from the group consisting of carbon fibers, graphite, boron nitride, silicon nitride, aluminum nitride, silicon carbide, and aluminum oxide.

8. The thermally conductive polymer molded article according to claim 1, wherein the thermally conductive filler comprises at least one of selected from carbon fiber and graphite, wherein each of the carbon fiber and the graphite has a thermal conductivity of 200 to 2000 W/(m·K) in at least one direction.

9. The thermally conductive polymer molded article according to claim 1, wherein the thermally conductive filler has electrical insulation properties.

10. The thermally conductive polymer molded article according to claim 1, wherein the thermally conductive polymer molded article is molded into a sheet, and wherein the liquid crystalline polymer and the thermally conductive filler are oriented in the thickness direction of the sheet by a magnetic field.

11. The thermally conductive polymer molded article according to claim 1, which is molded into a sheet form, wherein the liquid crystalline polymer and the thermally conductive filler are oriented in the direction parallel to

the surface of the sheet by a magnetic field.

12. A method for producing a thermally conductive polymer molded article formed of a thermally conductive composition, the thermally conductive composition comprising a liquid crystalline polymer and a thermally conductive filler having magnetic anisotropy, the method comprising steps of:

providing the thermally conductive composition into a mold;

allowing the liquid crystalline polymer in the thermally conductive composition in the mold to undergo phase transition to a liquid crystalline state;

placing the thermally conductive composition in the mold in a magnetic field, thereby orienting the liquid crystalline polymer and the thermally conductive filler contained in the thermally conductive composition in a predetermined direction;

allowing the liquid crystalline polymer in a liquid crystalline state to undergo phase transition to a solid state; and

solidifying the thermally conductive composition and removing the solidified composition from the mold.

13. The method according to claim 12, wherein the step of allowing the liquid crystalline polymer to undergo phase transition to the liquid crystalline state is achieved by heating, and each of the step of allowing the liquid crystalline polymer to undergo phase transition to the solid state and the step of solidifying the thermally conductive composition is achieved by cooling.

14. The method according to claim 12, wherein the thermally conductive composition further contains a solvent, and wherein the step of allowing the liquid crystalline polymer to undergo phase transition to the liquid crystalline state

is achieved by dissolving the liquid crystalline polymer into a solvent, and the step of allowing the liquid crystalline polymer to undergo phase transition to a solid state is achieved by removing the solvent.

15. An apparatus for producing a thermally conductive polymer molded article formed of a thermally conductive composition, the thermally conductive composition comprising a liquid crystalline polymer and a thermally conductive filler having magnetic anisotropy, wherein the liquid crystalline polymer and the thermally conductive filler are oriented in a predetermined direction, the apparatus comprising:

a mold having a cavity for containing the thermally conductive composition therein to mold the thermally conductive composition into a predetermined shape; and

a magnetic field generating device, located so that magnetic lines of force generated by the magnetic field generating device pass the cavity of the mold.

16. The apparatus according to claim 15, wherein the magnetic field generating device comprises a pair of permanent magnets respectively having opposite poles , wherein the pair of permanent magnets are disposed interposing the cavity there between.